

## REMARKS/ARGUMENTS

Claims 18-21 and 24-34 remain in the Application. Reconsideration and re-examination are respectively requested.

Please cancel claims 31-34. This renders the outstanding objections to claims 31-34 as moot.

The Examiner has initially rejected claims 26-34 under 35 U.S.C. 103(a) as being unpatentable over Hepler, et al. (United States Patent No. 5,334,006). Independent claims 18 and 26 have been amended as described more fully below.

Hepler, et al. ('006) is directed at a hot sprue **bushing** with an interchangeable **tip** having **multiple edge gates** for controlling the **temperature** of plasticized material while it flows from the injection nozzle **to the gates** of a **multiple cavity mold** (Abstract).

The present invention is directed at **exchangeable cavity edge gates mounted in recesses** in one or both of the sections of a **mold**. The exchangeable gates differ in dimensions based on the different materials to be processed, the differences in the gates providing an article with a uniform metallic appearance, wherein the different materials molded include at least one different pigment.

Hepler, et al.'s ('006) tip includes a **plurality** of branch flow channels that communicate with a flow bore and terminate in **multiple** openings **for edge gating** with a **plurality** of mold cavities.

Hepler, et al. ('006) thus does not teach or suggest **exchangeable edge gates** for a mold which may process two different materials (different in the metallic pigments used for

coloring and for visual effects) over some time span and which by exchanging said edge gates allow acceptable metallic appearing articles of two different materials to be manufactured.

Hepler, et al. ('006) is clear that their invention is directed at multicavity applications (see column 3, lines 23-24 of '006) for controlling the temperature of plasticized material (column 3, lines 28-31 of '006) and comprises a plurality of edge gates which can couple with a like number of cavities (column 3, lines 50-55 of '006). Dependent claim 5 of '006 recites that the tip is threaded "so that said tip can be easily exchanged for another for purposes of repair, manufacture and /or tip configuration changes". Hepler, et al is silent as to **exchanging cavity edge gates in a mold** to allow two or more plastic materials including metal flake pigments to provide plastic articles having a uniform metallic appearance. Hepler, et al. is also silent as to a first gate design mold member and a second gate design mold member being exchangeably **placeable in a recess in a mold section**.

The Examiner at page 3 of the Office Action mailed June 30, 2005 attempts to equate Hepler, et al.'s hole **28** in a stationary plate **26** (FIG. 2) to Applicants' recess in at least one of the mold sections. Hepler, et al.'s mold comprises a force block **16** and cavity block **18** similar to Applicants' mold sections, **12 14**. Hepler, et al. clearly distinguishes their hot sprue bushing as having a variety of edge gate configurations each of which has a **plurality** of equally spaced exit **ports 49** (see FIGS. 9, 10 and column 7, line 63 to column 8, line 2) from **cavity gates 22** in their FIG. 2 which the orifice of the nozzle **14** is connected to by the inventive hot sprue bushing **10** (see column 5, lines 45-56).

Applicants' invention is directed at **cavity gates in a mold section**, fed by a **runner system** (which Hepler, et al. recognizes at column 1, lines 28-33 as different from plasticized material entering one or more cavities directly via gates). Claim 26 has been amended to

recite “a feed system including a runner portion in direct fluid communication with said interchangeable member” (see page 4, lines 32 to page 5, line 3 for support).

Applicants’ invention is directed at an injection mold having **interchangeable gate inserts**, that are now in direct fluid communication with a runner portion of a feed system. Applicants are clear (see page 5, line2 of PCT/US00/26901) that the feed system **18** includes a **runner portion 22** and that “this discussion does not teach injection molding elements upstream of the drop **28** in mold sections **12, 14**. Such elements might include, for example, a **hot runner** manifold and associated **nozzles**, etc. (such as that of Hepler, et al.)”. Applicants go on to recite that “the exact manner in which molten material arrives to the gate portion **20** is not important to the present invention; and in any case various means for supplying molten plastic are wellknown to the persons skilled in the art” (emphasis added).

In other words, Hepler, et al.’s hot sprue bushing for transporting plasticized material from injection nozzle to the edge of the mold cavity is excluded from the present invention, which now recites a feed system including a runner portion in direct fluid communication with the interchangeable member (gate design mold member). Also, given that Hepler ultimately emphasizes material directly entering a cavity via gates, it is not believed appropriate to conclude that one of ordinary skill in the art would even consider to modify Hepler to include a runner system.

As a final point regarding this rejection, the Examiner (page 3) states that “Hepler already teaches the first and second gate design’s mold members are attachable to the bushing via threaded fasteners (see FIG. 9 and FIG. 10)”. Applicants’ first and second gate designs are removably attachable to at least one of the first or the second **mold sections** (see page 4,

lines 8-10 and page 5, lines 4-10 and FIG. 3 of PCT/US00/26901). Hepler, et al.'s invention does **not removably attach to a mold section**.

Claims 18-21, 24 and 25 were again rejected under 35 U.S.C. 103(a) as being unpatentable over Hepler, et al. (United States Patent No. 5,334,006). As noted above, it is believed that the Examiner is respectfully mistaken (at pages 4 and 5 of the Office Action mailed June 30, 2005) in her interpretation of Hepler, et al.

Hepler, et al. does **not** teach first and second mold gate designs attachable to a **mold section**. Hepler, et al.'s tip is attachable to their hot sprue bushing. As the Examiner admits, Hepler, et al.'s sprue bushing fits through a hole **28** in the stationary plate **26** of the molding machine and is **not** part of or **attached** to the mold.

Claim 18 has been amended to include "providing a feed system including a runner portion in direct fluid communication with said interchangeable members" (see again, page 4, lines 32 to page 5, line 3 for support). Applicants incorporate the argument above and again note that Hepler does not teach or suggest how to configure an interchangeable gate in a mold that includes a runner.

The present invention discloses the use of **first and second gate design mold members 40 or gate portions which are defined by two interchangeable members 41, 42**. The interchangeable members function to allow the adjustment of polymer flow fronts emanating from the gate **20** in order that sequential products of different colors, which include pigments used to modify light reflectively, can be injection molded without surface defects (weld, lines, visible flow fronts). Thus, major modifications to the mold are not required between the molding of the products of different colors (also defined as different plastic materials). Filled polymer compositions, particularly those containing various types of flat

particles or flakes, such as light reflective pigments as colorants, are popular today to create a unique appearance as well as to eliminate the need for painting. The rheological characteristics of these polymer compositions vary widely from color to color, particularly in automobile applications, due to the physical nature of these colorants. However, it is not cost effective to have separate molds or even to modify to a mold to optimize the processing characteristics for each color.

According to this invention, the entry points for polymer to the mold can now be built to accommodate interchangeable gate mold members or **gate portions (inserts)**, which include orifices of such dimensions such that the gate may either be open or closed or may partially limit polymer melt flow into a specific area of a mold, thus allowing polymer flow fronts to be adjusted. This results in less visible weld lines, swirls and flow patterns of the filled polymer such that products having acceptable surface appearance can be produced. In this manner, when a color change (or polymer change) is accomplished on a molding machine, only minor changes, in rapid fashion, need be made to the mold (interchanging gate portions or inserts to one specifically designed and dimensioned to provide acceptable appearing parts of a second (color) plastic).

Or, in other words, by providing a mold with a “first gate design” and a “second gate design”, the gate designs each having different dimensions, one can **selectively control the filling pattern for the mold**, by adjusting, for example, the openings (orifice dimensions) on the respective gates (interchangeable mold members). This versatility in the mold provides an economical means to shift the filling pattern of the mold and avoids the need to change the entire mold, reducing tooling costs and downtime.

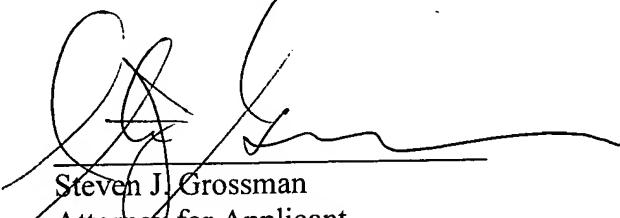
Thus, an important aspect of the present invention is to provide such interchangeable members (gate inserts) primarily designed to service a single mold, to allow the adjustment of polymer flow fronts to improve the aesthetics of metallic appearing plastic molded articles.

Given the above, and the fact that Hepler, et al. completely fails to teach or suggest the referenced features of the claims herein, it is respectfully submitted that the outstanding rejection of Hepler, et al. has been traversed, and the amended claims herein satisfy the requirements of 35 USC 103. Applicant respectfully submits that all claims currently pending in the application are believed to be in condition for allowance. Allowance at an early date is respectfully solicited.

In the event the Examiner deems personal contact is necessary, please contact the undersigned attorney at (603) 668-6560.

In the event there are any fee deficiencies or additional fees are payable, please charge them (or credit any overpayment) to our Deposit Account No. 50-2121.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service First Class Mail in an envelope addressed to: 22313-1450, on September 30, 2005, at Manchester, New Hampshire.

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